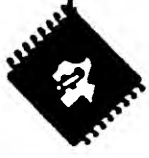









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1 Mask HD Cap Proposal

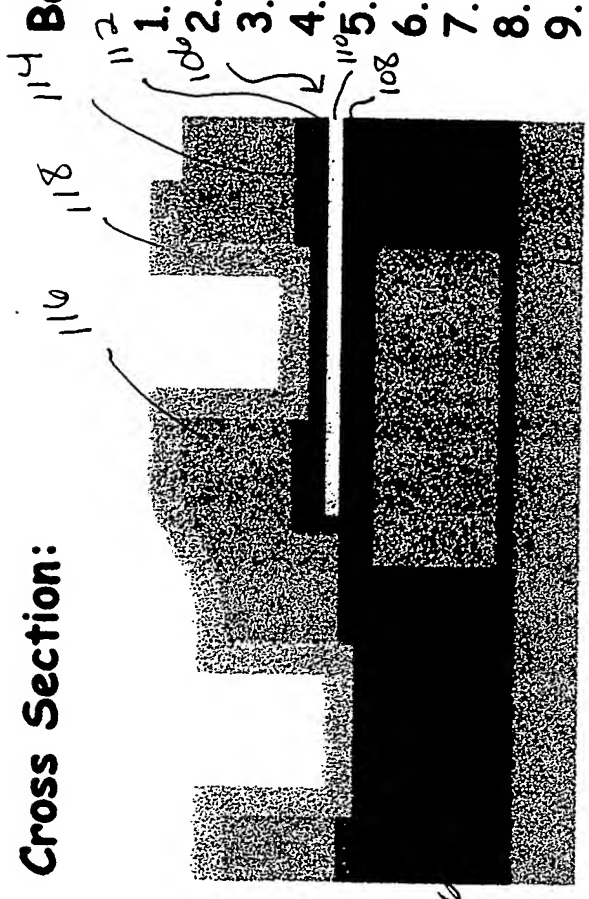


Materials:

-  Dielectric
-  SiC or SiN
-  Cu
-  TaN
-  HM
-  Ta2O5
-  Al

104 → 104
104

Cross Section:



Basic process flow:

1. Metal CMP
2. TaN deposition
3. Ta deposition
4. O₂ anneal
5. TaN dep
6. HD Cap pattern
7. Stack etch
8. SiN deposition
9. PO etch stop dep
10. PO etch
11. Al cap dep
12. Al cap pattern
13. Al cap etch

Main Processing Issues:

- A. HD Cap stack etch
- B. Edge leakage
- C. Al Cap coverage
- D. Stack step height

Rost C021

TI Proprietary Information - Internal Data

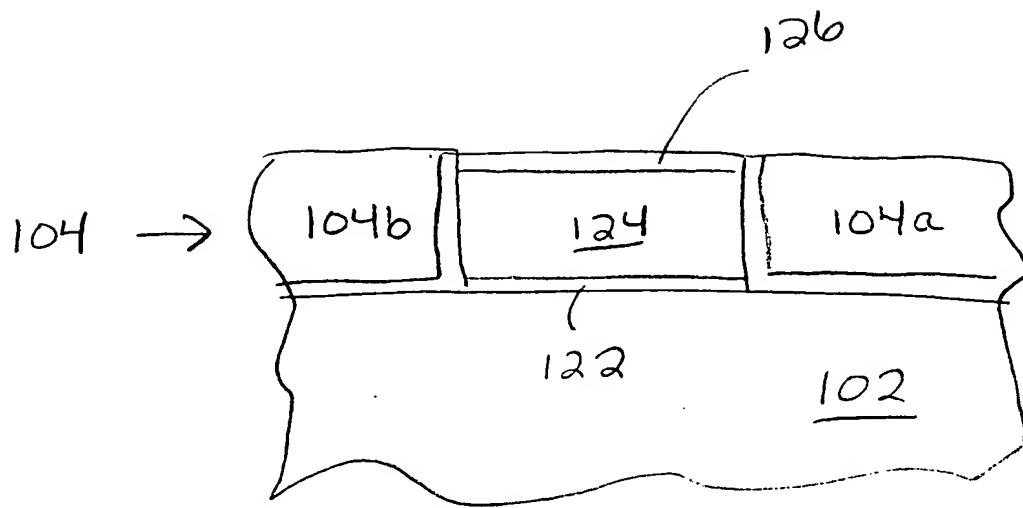


FIG. 2A

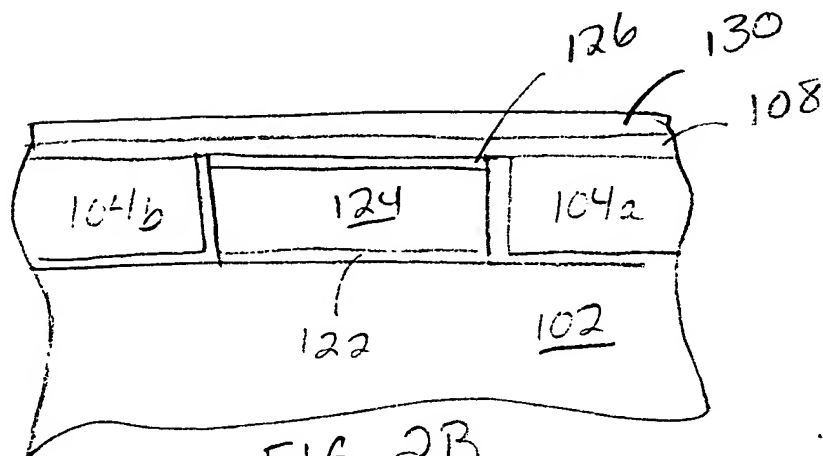


FIG. 2B

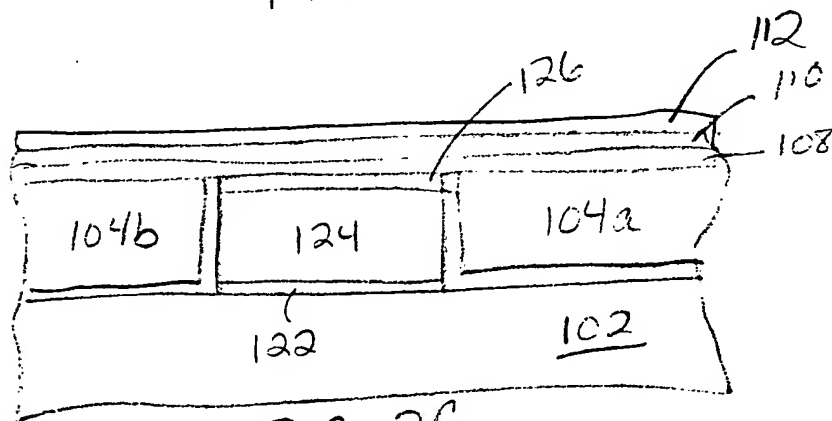


FIG. 2C

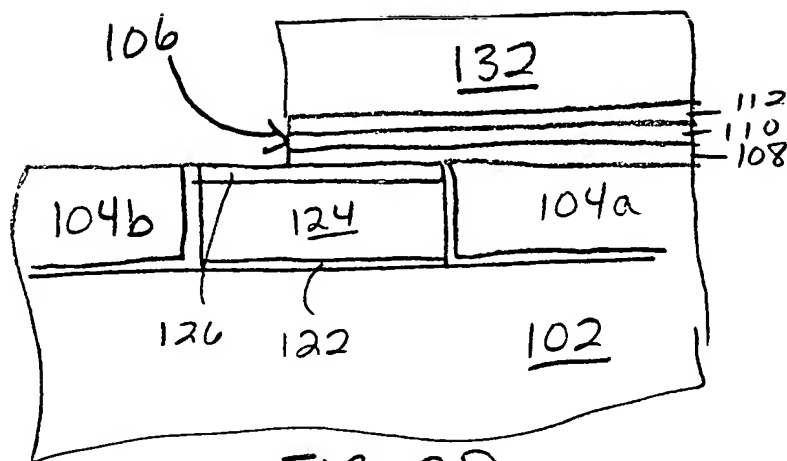


FIG. 2D

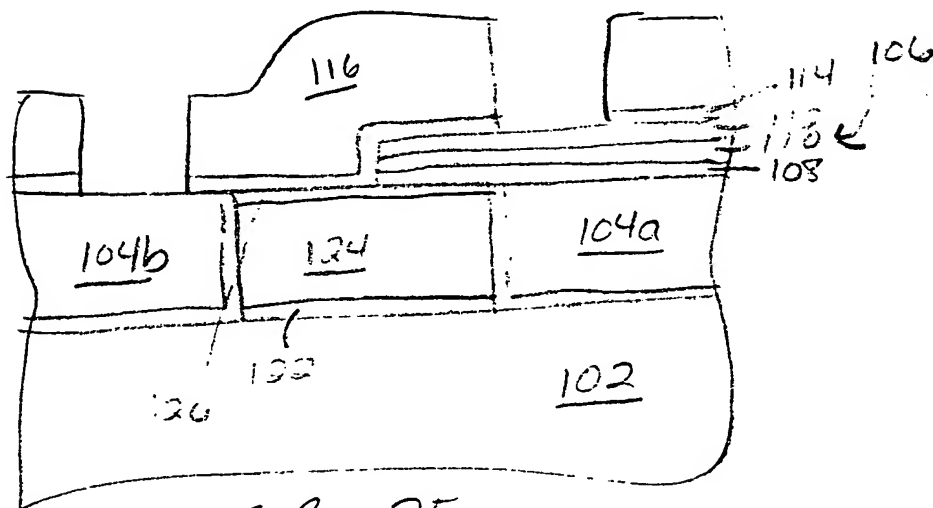


FIG. 2E

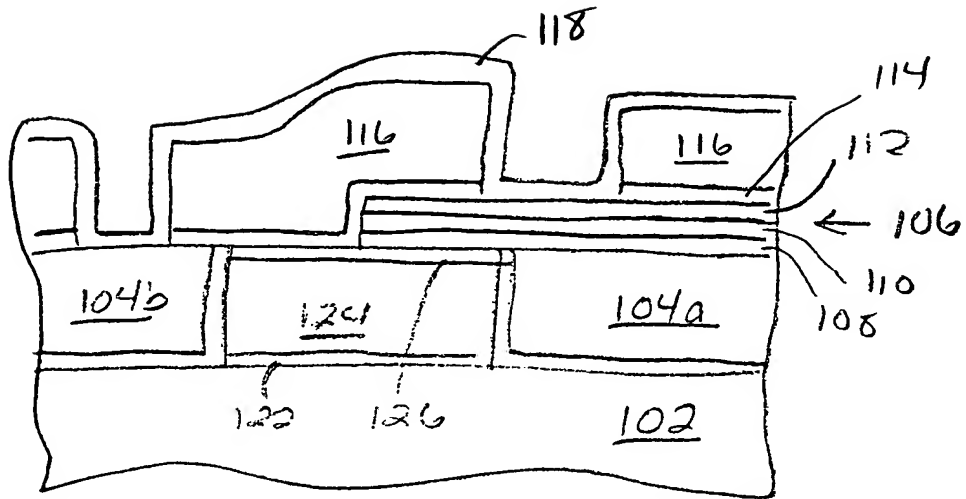


FIG. 2F

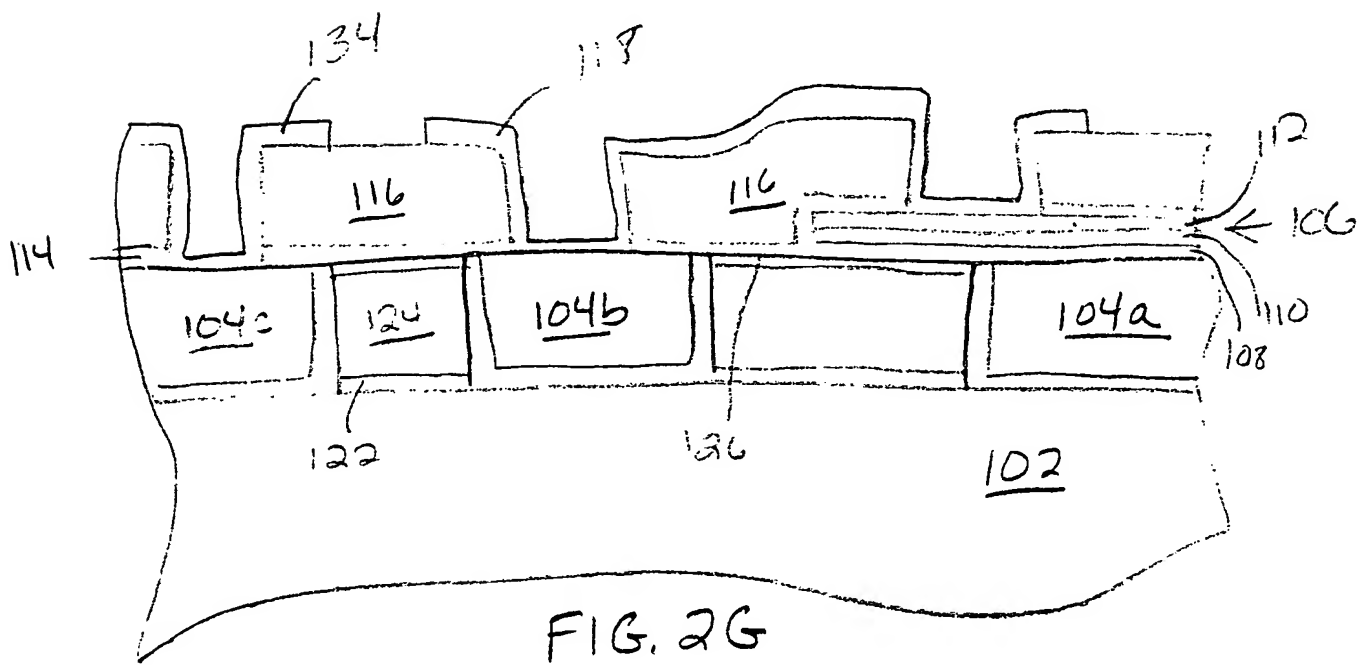


FIG. 2G